

What is claimed is:

1. An apparatus for casting a patterned surface on both sides of a web, the apparatus comprising:

5 a first patterned roll;

a second patterned roll;

means for rotating the first and second patterned rolls such that their patterns are transferred to opposite sides of the web while it is in continuous motion, and said patterns are maintained in continuous registration on said opposite sides of the web to within 100 microns.

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2. The apparatus according to claim 1 wherein the patterns are transferred to opposite sides of the web in registration to within 50 microns.

3. The apparatus according to claim 2 wherein the patterns are transferred to opposite sides of the web in registration to within 20 microns.

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4. The apparatus according to claim 3 wherein the patterns are transferred to opposite sides of the web in registration to within 5 microns.

5. The apparatus according to claim 1 further comprising a first dispenser for introducing material capable of being patterned onto the web before the web encounters the first patterned roll, and further comprising a second dispenser for introducing material capable of being patterned onto the web before the web encounters the second patterned roll.

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6. The apparatus according to claim 1 further comprising a first dispenser for introducing material capable of being patterned onto the first patterned roll, and further comprising a second dispenser for introducing material capable of being patterned onto the second patterned roll.

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7. The apparatus according to claim 5 wherein the first and second dispensers are adapted to dispense a castable polymer precursor capable of being cured to solid polymer.
8. The apparatus according to claim 7 further comprising means for exposing material adjacent to the first and the second patterned rolls to heat.
9. The apparatus according to claim 7 further comprising means for exposing material adjacent to the first and the second patterned rolls to radiant energy.
10. The apparatus according to claim 9 wherein the means for exposing material adjacent to the first patterned roll to radiant energy is disposed within the first patterned roll, and wherein the first patterned roll has at least a portion that is essentially transparent to the radiant energy.
11. The apparatus according to claim 10 wherein the radiant energy is selected from the group consisting of infrared, visible, and ultraviolet radiation.
12. A method for imposing a pattern on both sides of a web comprising:
patterning a web between first and second patterned rolls, each roll having a pattern, such that the patterns are transferred to opposite sides of the web while it is in continuous motion, such that said patterns are maintained in continuous registration on said opposite sides of the web to within 100 microns.
13. The method according to claim 12 wherein the patterns are transferred to opposite sides of the web in registration to within 50 microns.
14. The method according to claim 13 wherein the patterns are transferred to opposite sides of the web in registration to within 20 microns.

15. The method according to claim 14 wherein the patterns are transferred to opposite sides of the web in registration to within 5 microns.
16. The method according to claim 12 further comprising:
5 introducing material capable of being patterned onto one side the web before the web encounters the first patterned roll, and
introducing material capable of being patterned onto the opposite side of the web before the web encounters the second patterned roll.
- 10 17. The method according to claim 12 further comprising:
introducing material capable of being patterned onto the first patterned roll, and
introducing material capable of being patterned onto the second patterned roll.
- 15 18. The method according to claim 16 wherein the at least one of the materials is a castable polymer precursor capable of being cured to solid polymer.
19. The method according to claim 18 further comprising the:
exposing at least one of the materials while in contact with at least one of the first and the second patterned rolls to heat.
- 20 20. The method according to claim 18 further comprising:
exposing at least one of the materials while in contact with at least one of the first and the second patterned rolls to radiant energy.
- 25 21. The method according to claim 20 wherein said exposing is performed using a source disposed within at least one of first and the second patterned rolls, and wherein at least one of first and the second patterned rolls has at least a portion that is transparent to the radiant energy.

22. The method according to claim 21 wherein the radiant energy is selected from the group consisting of infrared, visible, and ultraviolet radiation.